

CAPTIVE KEEPING AND BREEDING OF THE FOUR-LINED RATSNAKE (*ELAPHE QUATUORLINEATA*-SPP.).

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INTRODUCTION

The four-lined ratsnake (*Elaphe quatuorlineata* spp.) lives in the Balkans, Greece and Italy. Typically the young are light grey, with black markings on the head (a black band across the forehead connecting the eyes) and with longitudinal rows of large dark blotches. The adults and immature specimens after their fourth year are light or dark brown with four black stripes running along the body.

Herpetologists recognize three subspecies:

- the Western four-lined ratsnake (*Elaphe quatuorlineata quatuorlineata*), with the typical pattern described above.
- the Bulgarian or Eastern four-lined ratsnake (*Elaphe*



Young *Elaphe quatuorlineata quatuorlineata* in the wild.
Photo: Stefano Pavan.



Female *Elaphe quatuorlineata quatuorlineata* with eggs.
Photo: Stefano Pavan.

quatuorlineata sauromates), is present in the steppes of North-eastern Greece, South-eastern Bulgaria, Asia Minor and Iran, the adults of this subspecies usually keep the immature pattern.

- the Aegean Island four-lined ratsnake (*Elaphe quatuorlineata muenterii*) lives in the Aegean Islands only and the mature pattern is characterised by a homogeneous colour (light grey or brown) without blotches or stripes.

In Italy only *Elaphe quatuorlineata quatuorlineata* is found, it lives in the Central and South peninsula (from Toscana to Sicily), where immature and mature animals are carried around at old snake processions and religious festival (e.g. St.-Domenico at Cocullo - Abruzzo). Its environment is mainly represented by Mediterranean scrub, rocky dry slopes and stony brushwoods, frequently near rivers or ponds, where it is active during the day and at dusk at a temperature of 24-34°C (75.2-93.2°F). It is a big snake, which is able to reach a length of about 250 centimetres (98.4 inches) and it



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can grow to almost 10 centimetres in diameter (3.9 inches).

The four-lined rat snake is shy, tame and peaceful, it is quite sluggish but it is a good climber and swimmer. It catches principally small and medium mammals, such as mice, rats, squirrels, dormice, young rabbits, weasels and voles but also takes eggs and nestlings, birds and lizards.

The four-lined rat snake is oviparous, it can lay up to 18 eggs. The young are 25-35 centimetres (9.8-13.7 inches), with a ratio male/female = 1.8; after the first slough, they start to eat small lizards and mammals and they grow very quickly.

CAPTIVITY

The four lined rat snake needs a large and well ventilated terrarium. The bottom should be covered with pebble gravel and some rocks and pieces of cork to provide large hiding places. A few branches and a large water basin are also needed. A bottom heater or a heat lamp should be provided. It requires a diurnal temperature of 28-33°C (82.4-91.4°F) and 22-25°C at night (71.6-77°F).



Elaphe quatuorlineata quatuorlineata hatching.
Photo: Stefano Pavan.



Elaphe quatuorlineata quatuorlineata, hatching.
Photo: Stefano Pavan.

The immature four-lined rat snakes feed on small and medium mice (pre-killed and alive). Adult animals feed on mice, rats, hamsters, chicks and eggs of pigeon, quail and chicken (it is better to deep-freeze eggs to avoid the risk of salmonellosis).

Three to five months of hibernation at 10-15°C are advisable, even if they are not absolutely necessary. During these months, four-lined ratsnakes stop generally feeding.

BREEDING

The animals mate in the spring after hibernation. Copulation usually lasts 3-5 hours and repeats after 5 days. During the mating period, the males don't eat, while the females are always voracious. The gestation is circa 70 days. Females spend hours lying on the bottom heater or on a branch exposed to the heat lamp. Then, the females lay 4-18 eggs of 60x30mm, which hatch after 60 days (55-65) at 27-30°C (80.6-86°F), with a humidity of 90-100% ('au bain Marie'). Newborn snakes readily eat 'pinkies' after their first slough (5-7 days from the birth). Often they will start to eat the following spring or at the end of winter.

Year	Egg-laying	N° of eggs	N° of young	Temperature ° C (°#)	*Mice (for week)
1995	28th June	6	6	30-34	14
1996(1)	6th July	10	0	24-26	3
1996(2)	12th July	8	0	24-26	2
1997(1)	17th July	8	0	24-26	2
1997(2)	20th July	8	0	24-26	1
1998	24th June	8	0	24-26	1
1999	2th July	8	6	28-30	7

Table 1: Captive breeding data of four-lined ratsnake (*Elaphe quatuorlineata quatuorlineata*). (1,2): during 1996 and 1997, two different females laid eggs. (°#): average temperature at the bottom. (*): number of pre-killed adult mice given between March and June.

The data presented in Table 1 show that four-lined ratsnake is a typical 'warm-climate' snake. It needs a long period of high temperature to succeed in breeding, as it is evident from its geographical distribution. Besides, it is a massive animal. During gestation, the females need a lot of food to develop good eggs.

The data suggests the four-lined rat snake needs two principal factors to be kept correctly in captivity:- a source of heat, which guarantees a temperature of 30-32°C at one zone of the terrarium, and abundant food, especially females during the breeding period.

The source of heat may be provided by a heat mat, pipe heating tape or simple incandescent light placed above a plane rock ('hot spot'). Heat must be provided from April to July to stimulate reproductive behaviour.

As an alternative to mammal food (mice and rats), it is possible to feed adult Western four-lined ratsnakes with hen eggs: they are nourishing and rich in proteins, besides they are also very cheap, easy to find and easy to keep. In this way, it is possible to have at one's dis-

posal a lot of food during the breeding period (up to 4-5 hen eggs a week).

The one advice is to wash them carefully and to freeze them for at least two weeks, this method helps to avoid the risk of salmonellosis (enteric disease caused by *Salmonella* sp.), which could be carried by hen faeces present on the eggs shell.

During the freezing, the hen eggs crack a little. When they have been defrosted, the white of the egg is a very good olfactory attraction for four-lined rat snakes. Almost all adult snakes have accepted this type of food.

CONCLUSION

Four-lined rat snakes are not well appreciated by herpetoculturists. In fact between the 'big' ratsnakes, many North American species (*Elaphe obsoleta obsoleta*, *Elaphe obsoleta quadrivittata*, *Elaphe obsoleta spiloides*) and some from Eastern Asia (*Elaphe taeniura* ssp., *Elaphe schrenckii* ssp., *Elaphe radiata*, *Elaphe moellendorffi*) arouse more interest and curiosity.



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Four-lined rat snakes may not have the beautiful colours and patterns of these other *Elaphe* but they are very peaceful and tame (they never bite!), they are very hardy and vigorous and they feed well in captivity. The only 'defect' is that they are exceptional ro-

dent eaters, as are *Elaphe obsoleta* ssp. or *Elaphe tainiura friesei*; so, it is important to remember this fact when four-lined rat snakes come into your cages.

Corrections: Mark Wootten

